

What is claimed is:

1. A method for determining an intraperitoneal volume during peritoneal dialysis, which comprising the steps of  
passing peritoneal solution from a peritoneal cavity in a first circuit adjacent a first side of a semipermeable membrane;  
passing dialyzing fluid in a second circuit adjacent a second side of the semipermeable membrane;  
measuring the concentration of an endogenous substance that passes through a peritoneum into the peritoneal solution in the peritoneal cavity; and  
determining the intraperitoneal volume from the variation in the concentration over time.

2. The method according to claim 1, wherein the measuring step further comprises:  
measuring the concentration  $c_0$  of the endogenous substance in the peritoneal solution at a time  $t_1$ ;  
withdrawing or delivering a predetermined volume  $\Delta V$  of fluid in the first circuit;  
measuring concentration  $c_1$  the of the endogenous substance in the peritoneal solution at a time  $t_2$ ; and  
wherein the determining step further comprises:  
determining the intraperitoneal volume from the equation:

$$V = \frac{\Delta V}{1 - c_0 / c_1}$$

3. The method according to claim 2, which further comprises the step of:  
determining an ultrafiltration rate  $V(t_1)/t_1$  from the variation in intraperitoneal volume in the time  $t_1 - t_2$ ;  
withdrawing fluid from the first circuit at the ultrafiltration rate.

4. The method according to claim 3, which further comprises the step of:  
determining continuously the variation in intraperitoneal volume during peritoneal dialysis for determination of the ultrafiltration rate.



the time period from time  $t_1$  to time  $t_2$ , and wherein the control unit controls the balancer to withdraw or deliver fluid in the first circuit at the ultrafiltration rate.

10. The apparatus of claim 6, wherein the endogenous substance is albumin.